REMARKS / ARGUMENTS

Reconsideration of the patentability of above identified patent application in view of the following remarks/arguments is hereby requested.

Claims 1 and 3 – 8 are now in the application. Claim 2, 13 and 20 have been previously cancelled. Claims 9 – 12, 14 – 19 and 21 have been previously withdrawn.

The Examiner has rejected Claims 1 and 3 – 8 and 22 – 23 under 35 U.S.C. §103(a) as being unpatentable over Tarui et al. in view of del Puerto et al.

The Applicant's Claim 1 calls for (underlining added for emphasis) ... A method for conditioning semiconductor wafers and/or hybrids comprising: preparing a space which is essentially enclosed by a container and has a wafer/hybrid chuck which is located therein and has the purpose of holding a semiconductor wafer and/or hybrid applied to the wafer/hybrid chuck; pre-cooling a dry fluid in a heat exchanger outside the space; conducting the pre-cooled fluid out of the heat exchanger into the wafer/hybrid chuck via a first line, and then through the wafer/hybrid chuck to cool the wafer/hybrid chuck; conducting at least a portion of the fluid having been conducted through the wafer/hybrid chuck to the heat exchanger via a second line out of the wafer/hybrid chuck to the heat exchanger; and heating the portion, by using a residual coldness of the portion to cool the heat exchanger to contribute to the pre-cooling of the fluid in the heat exchanger; wherein the heated portion is conducted via a third line from the heat exchanger into the space, before being allowed to flow out within the space to condition the atmosphere in the space.

The Applicant's Claim 6 calls for (underlining added for emphasis) ... A method for conditioning semiconductor wafers and/or hybrids, comprising: preparing a space which is essentially enclosed by a container and has a wafer/hybrid chuck which is located therein and has the purpose of holding a semiconductor wafer and/or hybrid applied to the wafer/hybrid chuck; pre-cooling a dry fluid in a heat exchanger outside the space; conducting the pre-cooled fluid out of the heat exchanger into the wafer/hybrid chuck via a first line, and then through the wafer/hybrid chuck to cool the wafer/hybrid chuck; wherein at least a portion of the fluid having been conducted through the wafer/hybrid chuck is used to condition the atmosphere within the space; wherein a first

portion of the fluid having been conducted through the wafer/hybrid chuck is firstly conducted via a second line out of the wafer/hybrid chuck to the heat exchanger, then heated by using a residual coldness of the first portion to cool the heat exchanger to contribute to the pre-cooling of the fluid in the heat exchanger, and then conducted via a third line from the heat exchanger into the space, before being allowed to flow out within the space, and wherein a second portion having been conducted through the wafer/hybrid chuck is allowed to flow out within the space directly after it leaves the wafer/hybrid chuck.

As such, the Applicant submits that Claims 1 and 6 are not unpatentable over Tarui et al. in view of del Pueroto et al. under 35 U.S.C. §103(a).

The Examiner continues to maintain that Tarui et al. discloses the claimed invention except for the claimed fluid being conducted through a chuck and has introduced del Puerto et al. to provide that feature.

However, the Applicant submits that the introduction of del Puerto et al. to provide for fluid being conducted through a chuck does not overcome the deficiencies of the Tarui et al. teachings.

According to the amended independent Claims 1 and 6, the dry fluid after having been pre-cooled in the heat exchanger is conducted succesively first through the first line, then through the wafer/hybrid chuck, then through the second line back to the heat exchanger. Because the first line leads out of the heat exchanger into the wafer/hybrid chuck and the second line leads out of the wafer/hybrid chuck to the heat exchanger, which is located outside the space, the fluid portion remains separate from the space during these steps. In this way, the fluid portion is enabled to cool the wafer/hybrid chuck including the wafer, which by being applied to the chuck is in thermal contact with it, substantially without undesirably lowering the temperature of the atmosphere in the space. Thereby the fluid portion retains a residual coldness, which then is used to cool the heat exchanger to contribute to the heat exchanger's task of pre-cooling freshly supplied fluid. It is only after having contributed in this way and thereby given up its residual coldness that the portion is allowed to flow out within the space. In this way, the dry, pre-cooled fluid used for cooling the wafer is re-used in a two-fold-way.

(1) its coldness is utilized in the heat exchanger for the pre-cooling of freshly supplied fluid.

(2) its dryness is utilized for conditioning the atmosphere within the space at a desired temperature that is higher than the temperature of the wafer.

As such, the two separate tasks of providing a cool wafer and a warmer, dry atmosphere surrounding it, can be performed with only a small amount of energy. The Applicant submits that Tarui et al. fails to disclose or render obvious such an arrangement, even in view of del Puerto et al.

Tarui et al. discloses a method for drying semiconductor wafers in which wafers are arranged vertically on horizontal boat 82 in a vessel 11. By heating liquid IPA at the bottom of the vessel using a first heat exchanger tube 17, dry IPA vapor is generated such that it flows out within the vessel and among the wafers. Second heat then is passed through a drain pipe 22 over the inner wall of the vessel to its bottom (column 4, line 25-31) where again it is heated by the first heat exchanger tube 17. The wafer boat and wafers, being positioned away from the inner walls of the vessel, thus are never reached by the IPA cooled by the second heat exchanger tube 21 but are maintained at the temperature of the IPA vapor generated by the first heat exchanger tube 17. As noted in Tarui et al. at column 4, lines 24 to 27, (underlining added for emphasis): "The second heat exchanger tube 21 has a function for cooling and condensing IPA vapor which flows into the gutter 22 through an inner opening 22a."

Also, Taraui et al.'s coolant source 28, as such is deemed by the Examiner to correspond to the heat exchanger in accordance with the present invention and has lines 21, 22 connected thereto, is not the same as the heating source 20 which connects to lines 17a, 17b and provides saturated/supersaturated steam as a heat source to provide the IPA vapor.

Further, since Tarui et al. is concerned solely with drying wafers, it does not provide any motivation for conditioning a wafer at a temperature lower than the surrounding atmosphere, since it teaches (see column 4, line 66 to column *5,* line 4) to increase the temperature of the wafers beyond that of their surroundings by irradiating them with infrared rays.

As such, the Applicant submits that there is no hint or suggestion in Tarui et al. as to a first portion of the fluid having been condueted through the wafer/hybrid chuck is firstly conducted via a second line out of the wafer/hybrid chuck to the heat exchanger, then heated by using a residual coldness of the first portion to cool the heat exchanger to contribute to the pre-cooling of the fluid in the heat exchanger, and then conducted via a third line from the heat exchanger into the space, before being allowed to flow out within the space.

As such, the Applicant submits that Claims 1 and 6 are not unpatentable over Tarui et al. even in view of del Puerto et al. under 35 U.S.C. §103(a).

Claims 3, 4, 5, 8 and 22 are dependent on Claim 1. Claims 7 and 23 are dependent on Claim 6. As such, these claims are believed allowable based upon Claims 1 and 6.

Therefore, in view of the above remarks it is submitted that the claims are patentably distinct over the prior art and that all the rejections to the claims have been overcome. As such, allowance of the above Application is requested.

Respectfully submitted,

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